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OCEANOGRAPHIC DATA EXCHANGE

1984

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WORLD DATA CENTER A
Oceanography

OCEANOGRAPHIC DATA EXCHANGE
1984

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I

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ABSTRACT

This report summarizes the oceanographic data exchange activities of World Data Center A (WDC-A), Oceanography during 1984. It includes tabulations of data received during 1984, as well as summarizations of oceanographic station data, bathythermograph data, biological observations, and surface and subsurface current measurements received prior to 1984. International data inventory forms received by this Center are also summarized. Data and inventory forms received are tabulated by nation, ship, cruises, and types of format and observation as appropriate. Quantities of data, publications, and information supplied to other nations and international organizations are also tabulated.

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INTRODUCTION

The World Data Center system was established in 1957 to collect data from the numerous and widespread observational programs of the International Geophysical Year (IGY) and to make such data readily accessible to interested scientists and scholars. The International Council of Scientific Unions (ICSU) Panel on World Data Centers is responsible for the operation of all WDC's. The guidelines which govern international exchange of oceanographic observations are found in both the ICSU's Fourth Consolidated Guide to International Data Exchange through the World Data Centres and the Intergovernmental Oceanographic Commission's (IOC's) Manual on International Oceanographic Data Exchange.

The WDC system consists of World Data Center A (WDC-A) located in the United States; WDC-B located in the U.S.S.R.; and several WDC-C's located in Western Europe, Australia, and Japan. WDC-A is established under the auspices of the U.S. National Academy of Sciences, where the Coordination Office is located. WDC-A is divided into eight discipline subcenters. These centers are located in institutions that, in the opinion of the Academy, can best serve the interests of science because of their data-handling capabilities for the appropriate scientific disciplines. WDC-A, Oceanography, is collocated with the National Oceanographic Data Center (NODC) in Washington, D.C. WDC-A, Oceanography does not process oceanographic data; NODC performs this function on WDC-A's behalf.

WDC-A, Oceanography, received data for more than 86,000 marine scientific observations during 1984, including data for 30,826 oceanographic stations. The international marine data base of the Center now contains data for more than 1,850,000 observations. All data held by the Center are described in semiannual Change Notices to the Catalogue of Data.

This report also includes a tabulation of National Oceanographic Programs (NOP's) and Declared National Programs (DNP's) as identified in the IOC's quarterly periodical International Marine Science (IMS) or equivalent IOC information documents. A comparison is made by individual nations of the number of programs declared for international exchange of data and the corresponding number of these programs for which WDC-A, Oceanography, has received data.

WDC-A, Oceanography, received a total of 1,159 marine scientific publications and articles from 37 nations and 12 international organizations. These documents are listed and indexed in yearly Supplements to the Catalogue of Accessioned Publications.

Data inventory forms such as the Report of Observations/Samples Collected by Oceanographic Programs (ROSCOP) provide WDC-A, Oceanography, and other centers with a means for determining the availability of internationally exchangeable data in advance of the actual receipt and cataloguing of the data by the data center. During 1984, a total of 874 ROSCOP forms describing international cruises were received by WDC-A. The total number now on hand is 14,858.

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DATA ACQUIRED

World Data Centers, Oceanography, exchange marine scientific data internationally in accordance with principles set forth by the ICSU Guide and the IOC's Manual. Each WDC is held responsible for the copying and provision of all data received to its counterpart WDC and for the provision of any and all data in its charge to requesters in the international community. Thus, there can be no restrictions or limitations placed on data exchanged through the WDC system.

The Center's international marine data base now contains data for 799,656 oceanographic stations, 318,570 bathythermograph observations, 119,511 biological observations, 18,184 geological samples, 7,145 geophysical observations, and 595,063 surface and subsurface current measurements. In all, the data base contains data for 1,858,129 marine scientific observations. Tabulations of the Center's holdings of oceanographic station data, bathythermograph observations, biological observations, and current measurements are given by nation in tables 6, 7, 8, and 9, respectively.

During 1984, data for 86,543 marine scientific observations including data for 30,836 oceanographic serial stations were received. Table 1 gives the exact figures, and figure 1 shows the growth of the station data base since 1970. A total of 49,366 oceanographic stations, or approximately 6.2 percent of the total station data base, represent data obtained by electronic, insitu, Salinity/Temperature/Depth (STD) sensors. Data for 10,798 bathythermograph observations, 6,711 biological observations and 38,198 current measurements were also received during 1984.

All data held by the Center are described in the Catalogue of Data and the semiannual Change Notices to the Catalogue. The Catalogue is available to qualified requesters in the international scientific community.

Table 1. -- Number of oceanographic serial stations received, 1970-1984

Year	Stations received during period	Stations on hand at end of period
	Number	Number
1970	40,091	279,509
1971	35,596*	315,105
1972	35,771	350,876
1973	58,292	409,168
1974	38,676	457,844
1975	34,782	482,626
1976	43,498	526,124
1977	22,197	548,321
1978	32,731*	581,052
1979	38,790*	619,842
1980	34,265	654,107
1981	37,087	691,194
1982	38,173	729,367
1983	39,453	768,820
1984	30,836	799,656

* Adjusted by inventory.

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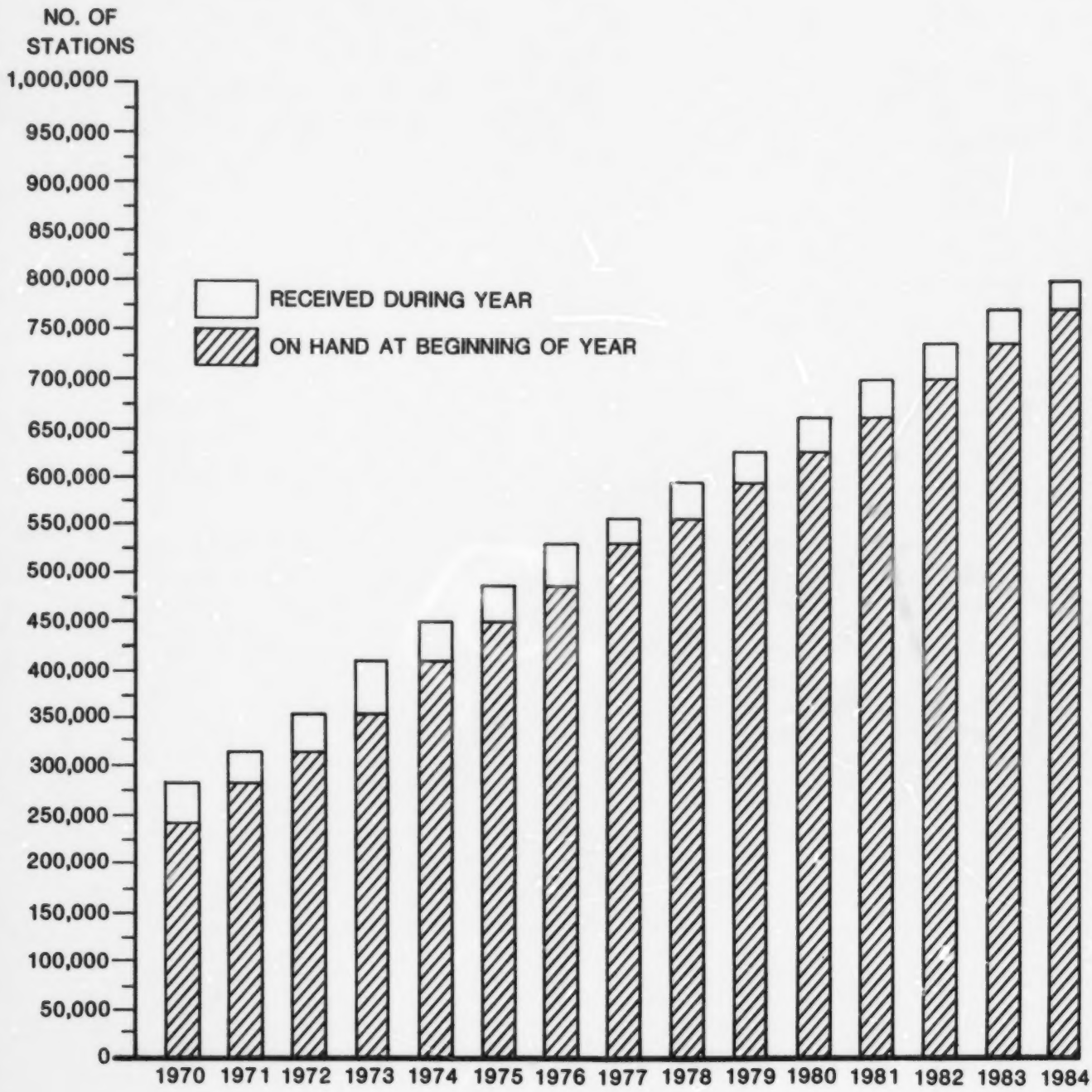

Figure 1. -- Number of oceanographic serial stations on hand and received, by year

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The oceanographic station data received by WDC-A, Oceanography, can be categorized as those resulting from (1) declared national programs, (2) international cooperative expeditions, and (3) other data exchange programs. Many of these programs for 1960 onward data have been listed as "National Oceanographic Programs (NOP's)" in various IOC information documents, including 1963-70 issues of the quarterly periodical International Marine Science (IMS). Table 2 lists, by nation, the number of stations for which data were received during 1984 for these categories: stations taken during the period of the International Geophysical Year - International Geophysical Committee (IGY-IGC) (1957-59); stations identified in IOC documents as being part of the NOP's for 1960 onward; and stations that could not be identified with either of these categories (listed as "Other data" in table 2). The percentage (25.2) of the station data received that could be identified as a part of cruise programs listed under IOC-IMS was comparable to the 1983 percentage. It is expected that the trend by many nations toward the declaration of implemented rather than planned cruise programs will result in increasingly higher percentages of IOC-IMS identifed data. To date, however, data received from most nations have been for years of observation prior to the years in which those nations have reported implemented cruise programs. The tables in this report do not include tabulations for planned programs. This Center continues to welcome the voluntary contributions of all marine scientific data, whether NOP-related or not.

Table 3 gives a comparison of percentages of data received during recent years for the three categories.

INTERNATIONAL DATA EXCHANGE

Table 4 tabulates, by nation, the total number of cruises (National Oceanographic Programs) listed in IOC information documents (including IMS) since these programs were first generated in 1960. The number of programs (cruises) listed is compared with the corresponding number of these programs for which WDC-A, Oceanography, has received at least one of the data types listed as of 31 December 1984. For tabulation purposes, each discrete IMS or other IOC identification number was considered as one cruise. WDC-A, Oceanography, has received data from 31.3 percent of the NOP cruises.

Declared National Programs are those which a nation has publicly declared with the implied intention of exchanging the resulting data internationally. Data resulting from DNP's are to be exchanged internationally in accordance with provisions of the IOC's Manual on International Oceanographic Data Exchange. Table 5 totals, by nation, the number of NOP's (see table 4) that were further identified as DNP's. The number of DNP's listed in IOC information documents is compared with the corresponding number of these programs for which WDC-A, Oceanography, has received at least one of the types of data listed as of 31 December 1984. WDC-A, Oceanography, has received data from 34.1 percent of the DNP cruises.

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Table 2. -- Categories of oceanographic stations received during 1984

Nation	IGY-IGC (1957-59)	IOC-IMS (1960 onward)	Other data	Total
4. Brazil	--	519	--	519
6. Canada	--	293	2,899	3,192
7. Chile	--	--	333	333
8. Colombia	--	44	275	319
9. Denmark	--	--	4,463	4,463
13. France	--	509	1,245	1,754
14. Germany (F.R.)	--	126	1,292	1,418
15. Germany (D.R.)	--	--	61	61
19. India	--	--	258	258
23. Italy	--	--	248	248
24. Japan	--	1,587	995	2,582
27. New Zealand	--	--	406	406
30. Peru	--	--	1,413	1,413
33. Portugal	--	--	81	81
34. Spain	--	--	45	45
35. Sweden	--	532	--	532
37. U.S.S.R.	--	320	2,163	2,483
38. United Kingdom	--	34	--	34
39. United States	147	3,795	5,344	9,286
42. Yugoslavia	--	--	178	178
43. Korea	--	--	1,231	1,231
Total	147	7,759	22,930	30,836
Percentage	0.5	25.2	74.3	100.0

Table 3. -- Percentage of data received

Year	IGY-IGC (1957-59)	IOC-IMS (1960 onward)	Other data	Total
1973	8.2	15.3	76.5	100.0
1974	0.0	29.5	70.5	100.0
1975	1.7	30.3	68.0	100.0
1976	21.1	37.1	41.8	100.0
1977	0.1	53.9	46.0	100.0
1978	0.0	58.2	41.8	100.0
1979	0.5	48.4	51.1	100.0
1980	0.5	44.2	55.3	100.0
1981	0.0	40.2	59.8	100.0
1982	1.4	16.5	82.1	100.0
1983	0.0	28.1	71.9	100.0
1984	0.5	25.2	74.3	100.0

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Table 4. -- National Oceanographic Programs (NOP's)

Nation	A Cruises listed in IMS †	B Cruises for which WDC-A has received data ‡	B/A Percent
1. Argentina.....	186	65	34.9
2. Australia.....	684	288	42.1
3. Belgium.....	10	4	40.0
4. Brazil.....	323	52	16.1
6. Canada.....	198	63	31.8
7. Chile.....	12	2	16.7
8. Colombia.....	15	9	60.0
9. Denmark.....	10	7	70.0
10. Ecuador.....	5	0	0.0
11. Finland.....	15	12	80.0
12. Taiwan.....	4	4	100.0
13. France.....	426	24	5.6
14. Germany (F.R.).....	968	197	20.4
15. Germany (D.R.).....	56	0	0.0
18. Iceland.....	26	18	69.2
19. India.....	26	13	50.0
20. Indonesia.....	1	1	100.0
21. Ireland.....	1	0	0.0
24. Japan.....	3,733	2,067	55.4
26. Netherlands.....	235	49	20.9
27. New Zealand.....	78	5	6.4
28. Norway.....	366	45	12.3
29. Pakistan.....	5	0	0.0
30. Peru.....	46	0	0.0
32. Poland.....	63	36	57.1
33. Portugal.....	3	2	66.7
34. Spain.....	17	5	29.4
35. Sweden.....	538	267	49.6
36. South Africa.....	21	13	61.9
37. U.S.S.R.....	887	331	37.3
38. United Kingdom.....	2,929	106	3.6
39. United States.....	4,463	1,463	32.8
43. Korea, Rep. of.....	27	0	0.0
45. Nigeria.....	4	1	25.0
49. Morocco.....	4	0	0.0
51. Thailand.....	2	0	0.0
52. Turkey.....	18	0	0.0
63. Romania.....	6	2	33.3
66. Algeria.....	15	0	0.0
69. Tanzania.....	5	0	0.0
76. Bulgaria (People's Republic).....	4	0	0.0
Total	16,435	5,151	31.3

† Each IMS or other IOC identification number is considered as one cruise.
‡ Includes data for any type of observation listed for a particular cruise and observed during the time period listed for that cruise.

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Table 5. -- Declared National Programs (DNP's)

Nation	A Cruises listed in IMS †	B Cruises for which WDC-A has received data ‡	B/A Percent
1. Argentina.....	186	65	34.9
2. Australia.....	447	151	33.8
3. Belgium.....	3	2	66.7
4. Brazil.....	319	50	15.7
6. Canada.....	149	11	7.4
7. Chile.....	4	0	0.0
8. Colombia.....	15	9	60.0
9. Denmark.....	0	--	--
10. Ecuador.....	5	0	0.0
11. Finland.....	3	3	100.0
12. Taiwan.....	0	--	--
13. France.....	141	7	5.0
14. Germany (F.R.).....	54	28	51.8
15. Germany (D.R.).....	17	0	0.0
18. Iceland.....	6	5	83.3
19. India.....	11	0	0.0
20. Indonesia.....	0	--	--
21. Ireland.....	0	--	--
24. Japan.....	1,263	860	68.1
26. Netherlands.....	0	--	--
27. New Zealand.....	5	4	80.0
28. Norway.....	252	43	17.1
29. Pakistan.....	0	--	--
30. Peru.....	16	0	0.0
32. Poland.....	3	3	100.0
33. Portugal.....	0	--	--
34. Spain.....	9	4	44.4
35. Sweden.....	186	138	74.2
36. South Africa.....	0	--	--
37. U.S.S.R.....	879	321	36.5
38. United Kingdom.....	818	26	3.2
39. United States.....	4,226	1,349	31.9
43. Korea, Rep. of.....	0	--	--
45. Nigeria.....	0	--	--
49. Morocco.....	0	--	--
51. Thailand.....	0	--	--
52. Turkey.....	0	--	--
63. Romania.....	6	2	33.3
66. Algeria.....	15	0	0.0
69. Tanzania.....	0	--	--
Total	9,038	3,081	34.1

† Each IMS or other IOC identification number is considered as one cruise.
‡ Includes data for any type of observation listed for a particular cruise and observed during the time period listed for that cruise.

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INTERNATIONAL MARINE DATA BASE

Oceanographic Station Data Base

Table 6 summarizes the number of oceanographic serial stations received, with the various totals listed by year in which the stations were occupied (year the data were observed), and by nation under which these data are catalogued. Nations from which no station data have been received are not listed, although in some cases publications or other data may have been received. For each nation, the lines of the table are defined as follows:

Periods

Line (a) -- Number of stations on hand as of 31 December 1983.

Line (b) -- Number of stations received from 1 January through 31 December 1984.

Line (c) -- Number of stations on hand as of 31 December 1984.

Table 6 shows that most of the 799,656 oceanographic stations held by WDC-A, Oceanography, represent contemporary data observed since the beginning of the International Geophysical Year (IGY) in 1957. Only 3,093 stations, or less than one-half of 1 percent of the total station data base, were observed prior to 1957.

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Table 6. -- NUMBER OF OCEANOGRAPHIC STATIONS

NATION	* SERIES	YEARS DATA WERE OBSERVED														
		PRE-1957	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
1. Argentina	(a)	36	41	90	79	20	31	127	432	174	96	106	207	185	234	72
	(b)															
	(c)	36	41	90	79	20	31	127	432	174	96	106	207	185	234	72
2. Australia	(a)		271	260	556	317	847	856	896	784	670	504	836	1,099	747	389
	(b)															
	(c)		271	260	556	317	847	856	896	784	670	504	836	1,099	747	389
3. Belgium	(a)		40	20	35	45	207	36	20	30	34					
	(b)															
	(c)		40	20	35	45	207	36	20	30	34					
4. Brazil	(a)		99	27	94	102	98	82	138		137	356	440	288	360	88
	(b)															
	(c)		99	27	94	102	98	82	138		137	356	440	288	360	88
6. Canada	(a)		221	870	1,260	*1,558	2,269	2,425	2,071	1,221	1,581	1,308	1,991	3,398	2,129	1,711
	(b)				8	13	8							34	317	321
	(c)		221	870	1,268	1,571	2,277	2,425	2,071	1,221	1,581	1,308	1,991	3,432	2,446	2,032
7. Chile	(a)				40	118		62		79	51	23	103			10
	(b)													181		
	(c)				40	118		62		79	51	23	103	181		10
8. Colombia	(a)									25	124	52			45	56
	(b)															
	(c)									25	124	52			45	56
9. Denmark	(a)	267	5,304	5,137	534	429	516	240	386	270	5,037	188	207	258	337	180
	(b)															
	(c)	267	5,304	5,137	534	429	516	240	386	270	5,037	188	207	258	337	180
10. Ecuador	(a)			30			159	578	755	408	121	46	52	29		23
	(b)															
	(c)			30			159	578	755	408	121	46	52	29		23
11. Finland	(a)	96	624	199	2,992	124	237	832	748	754	727	730	197	369	398	387
	(b)															
	(c)	96	624	199	2,992	124	237	832	748	754	727	730	197	369	398	387
12. Taiwan	(a)							21	43		38	76	65	73	38	36
	(b)															
	(c)							21	43		38	76	65	73	38	36
13. France	(a)	307	488	528	460	667	601	281	354	276	645	275	378	132	302	177
	(b)										48			45		
	(c)	307	488	528	460	667	601	281	354	276	693	275	378	177	302	177

* Adjusted by inventory.

** For explanation, see page 8.

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Table 6. -- NUMBER OF OCEANOGRAPHIC STATIONS (continued)

NATION	SOURCE*	YEARS DATA WERE OBSERVED															TOTALS
		1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	
1. Argentina	(a)			50	16	191	48	130	364	120							2,849
	(b)																
	(c)			50	16	191	48	130	364	120							2,849
2. Australia	(a)	767	*1,297	1,639	341	112	110	87									*13,385
	(b)																
	(c)	767	1,297	1,639	341	112	110	87									13,385
3. Belgium	(a)	323	349	335	334	354	343	272	315	99							3,191
	(b)																
	(c)	323	349	335	334	354	343	272	315	99							3,191
4. Brazil	(a)	317	208	275	375	396		373		403	147						4,803
	(b)										62	305	152				519
	(c)	317	208	275	375	396		373		403	209	305	152				5,322
6. Canada	(a)	1,285	1,939	1,134	581	836	922	*771	459	1,493	1,981	835	335				*36,584
	(b)	246	7	290		27	93	106	147	148	181	34	731	481			3,192
	(c)	1,531	1,946	1,424	581	863	1,015	877	606	1,641	2,162	869	1,066	481			39,776
7. Chile	(a)	18								38							542
	(b)		78	14			60										333
	(c)	18	78	14			60			38							875
8. Colombia	(a)		184	31	40	192		7		21							777
	(b)		44				144	105	26								319
	(c)		228	31	40	192	144	112	26	21							1,096
9. Denmark	(a)	257	334	288	198	2,416	129	120	126	60							23,218
	(b)				2,440		2,023										4,463
	(c)	257	334	288	2,638	2,416	2,152	120	126	60							27,681
10. Ecuador	(a)								33								2,234
	(b)																
	(c)								33								2,234
11. Finland	(a)	168	492	470	442	451		352	381	408	443						13,021
	(b)																
	(c)	168	492	470	442	451		352	381	408	443						13,021
12. Taiwan	(a)	35			53	199											677
	(b)																
	(c)	35			53	199											677
13. France	(a)	380	121	44	112	58											6,586
	(b)	44	216	198	101	253	119	61	108	238	17	95	176	35			1,754
	(c)	424	337	242	213	311	119	61	108	238	17	95	176	35			8,340

* Adjusted by inventory.

** For explanation, see page 8.

Table 6. -- NUMBER OF OCEANOGRAPHIC STATIONS (continued)

NATION	**	YEARS DATA WERE OBSERVED														
		PRE-1957	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
14. Germany (F.R.)	(a)		519	622	843	1,117	761	786	1,140	2,129	1,991	1,326	1,249	2,388	2,082	1,669
	(b)															
	(c)		519	622	843	1,117	761	786	1,140	2,129	1,991	1,326	1,249	2,388	2,082	1,669
15. Germany (D.R.)	(a)									409	65	62			191	340
	(b)															
	(c)									409	65	62			191	340
16. Ghana	(a)									79	57	20	45	111	150	154
	(b)															
	(c)									79	57	20	45	111	150	154
18. Iceland	(a)		15	399	135	245	314	113	278	283	319	441	210	247	258	155
	(b)															
	(c)		15	399	135	245	314	113	278	283	319	441	210	247	258	155
19. India	(a)		243	160	162	65	69	214	269	186	137					
	(b)															
	(c)		243	160	162	65	69	214	269	186	137					
20. Indonesia	(a)	34	104						44	180	127	34	94			81
	(b)															
	(c)	34	104						44	180	127	34	94			81
22. Israel	(a)	109			14	15	31	181	59	93	49	101	169	193	213	87
	(b)															
	(c)	109			14	15	31	181	59	93	49	101	169	193	213	87
23. Italy	(a)		264	405	117	67	140		96	82	23	238	250	185	96	178
	(b)															109
	(c)		264	405	117	67	140		96	82	23	238	250	185	96	287
24. Japan	(a)		1,686	2,371	1,522	1,416	2,296	1,735	9,693	15,248	16,189	14,811	15,198	15,234	14,265	14,334
	(b)															
	(c)		1,686	2,371	1,522	1,416	2,296	1,735	9,693	15,248	16,189	14,811	15,198	15,234	14,265	14,334
25. Mexico	(a)												141			53
	(b)															
	(c)												141			53
26. Netherlands	(a)		137	374	356	295	614	539	797	601	58	178	398	141	378	429
	(b)															
	(c)		137	374	356	295	614	539	797	601	58	178	398	141	378	429
27. New Zealand	(a)	20	62	87		9		52		64	38	26	123	70	80	150
	(b)															
	(c)	20	62	87		9		52		64	38	26	123	70	80	150

** For explanation, see page 8.

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Table 6. — NUMBER OF OCEANOGRAPHIC STATIONS (continued)

NATION	SOURCE**	YEARS DATA WERE OBSERVED															TOTALS
		1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	
14. Germany (F.R.)	(a)	1,369	1,343	1,380	1,950	1,692	987	898	1,393	748	705	506	61				31,654
	(b)							56		70	140	56	498	598			1,418
	(c)	1,369	1,343	1,380	1,950	1,692	987	954	1,393	818	845	562	559	598			33,072
15. Germany (D.R.)	(a)	458	380	388	255	83	588										3,219
	(b)									61							61
	(c)	458	380	388	255	83	588			61							3,280
16. Ghana	(a)	132	148	96	98	96	70	76		124							1,456
	(b)																
	(c)	132	148	96	98	96	70	76		124							1,456
18. Iceland	(a)	542	381	447	485	488	503	756	755								7,769
	(b)																
	(c)	542	381	447	485	488	503	756	755								7,769
19. India	(a)	48	283														1,836
	(b)									258							258
	(c)	48	283							258							2,094
20. Indonesia	(a)	325	232	216	113	90	159	60	33	118	52	71					2,167
	(b)																
	(c)	325	232	216	113	90	159	60	33	118	52	71					2,167
22. Israel	(a)	121															1,435
	(b)																
	(c)	121															1,435
23. Italy	(a)					11	77										2,229
	(b)	63	19				21	36									248
	(c)	63	19			11	98	36									2,477
24. Japan	(a)	14,289	15,790	14,906	13,414	12,952	12,612	13,031	13,487	12,776	11,890	1,843	390				263,378
	(b)					16		16				28	1,356	1,166			2,582
	(c)	14,289	15,790	14,906	13,414	12,968	12,612	13,047	13,487	12,776	11,890	1,871	1,746	1,166			265,960
25. Mexico	(a)	497	233	40	162			14	158								1,298
	(b)																
	(c)	497	233	40	162			14	158								1,298
26. Netherlands	(a)	865	473	200	21	414	29	12	17	20	76	14					7,436
	(b)																
	(c)	865	473	200	21	414	29	12	17	20	76	14					7,436
27. New Zealand	(a)	25															806
	(b)			33	10	29	49	187	98								406
	(c)	25		33	10	29	49	187	98								1,212

** For explanation, see page 8.

Table 6. -- NUMBER OF OCEANOGRAPHIC STATIONS (continued)

NATION	Footnote*	YEARS DATA WERE OBSERVED														
		PRE-1957	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
28. Norway	(a)		1,106	2,169	1,582	1,600	1,630	1,500	1,702	1,443	1,611	1,536	1,374	1,389	1,444	247
	(b)															
	(c)		1,106	2,169	1,582	1,600	1,630	1,500	1,702	1,443	1,611	1,536	1,374	1,389	1,444	247
29. Pakistan	(a)									36			15			
	(b)															
	(c)									36			15			
30. Peru	(a)						249	415	374	535	415	163	66	139	21	50
	(b)											154	208	59	128	93
	(c)						249	415	374	535	415	317	274	198	149	143
31. Philippines	(a)													98	101	
	(b)															
	(c)													98	101	
32. Poland	(a)		280	500	481	367	296	356	360	616	407	508	650	137	873	482
	(b)															
	(c)		280	500	481	367	296	356	360	616	407	508	650	137	873	482
33. Portugal	(a)									90	28	154		85	234	286
	(b)															
	(c)									90	28	154		85	234	286
34. Spain	(a)						105	131	46	60						
	(b)															
	(c)						105	131	46	60						
35. Sweden	(a)		1,642	1,662	2,007	1,916	1,908	1,670	1,565	2,005	1,644	1,632	422	1,530	1,380	1,494
	(b)															
	(c)		1,642	1,662	2,007	1,916	1,908	1,670	1,565	2,005	1,644	1,632	422	1,530	1,380	1,494
36. South Africa	(a)			606	566	834	797	1,042	937	895	821	758	412	151	130	
	(b)															
	(c)			606	566	834	797	1,042	937	895	821	758	412	151	130	
37. U.S.S.R.	(a)	172	1,251	1,684	2,115	1,506	1,249	680	781	1,515	2,587	2,608	1,256	1,916	2,669	4,391
	(b)							475			473	243	466	228		256
	(c)	172	1,251	1,684	2,115	1,506	1,249	1,155	781	1,515	3,060	2,851	1,722	2,144	2,669	4,647
38. United Kingdom	(a)		1,486	1,616	1,788	2,326	1,904	1,940	1,267	1,136	1,016	443	305	385	163	74
	(b)															
	(c)		1,486	1,616	1,788	2,326	1,904	1,940	1,267	1,136	1,016	443	305	385	163	74
39. United States	(a)	1,181	3,508	2,777	4,510	3,200	4,107	3,418	5,795	6,406	6,410	6,295	6,765	7,800	8,169	6,767
	(b)	91	56				5		21		72				370	
	(c)	1,272	3,564	2,777	4,510	3,200	4,112	3,418	5,816	6,406	6,482	6,295	6,765	7,800	8,539	6,767

** For explanation, see page 8.

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Table 6. -- NUMBER OF OCEANOGRAPHIC STATIONS (continued)

NATION	PERIODS**	YEARS DATA WERE OBSERVED															TOTALS
		1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	
28. Norway	(a)	252	156	241	185	122	125										21,414
	(b)																
	(c)	252	156	241	185	122	125										21,414
29. Pakistan	(a)	123															174
	(b)																
	(c)	123															174
30. Peru	(a)						78	22									2,527
	(b)	174	184	55	141	86	131										1,413
	(c)	174	184	55	141	86	209	22									3,940
31. Philippines	(a)																199
	(b)																
	(c)																199
32. Poland	(a)	222	351	320	258	173	56	110			87						7,890
	(b)																
	(c)	222	351	320	258	173	56	110			87						7,890
33. Portugal	(a)	469	258	321	148			37									2,110
	(b)									18	43	20					81
	(c)	469	258	321	148			37		18	43	20					2,191
34. Spain	(a)	48	30	206	115	35	59				60						895
	(b)						45										45
	(c)	48	30	206	115	35	104				60						940
35. Sweden	(a)	1,089	1,556	845	513	671	637	750	600	284	465	450	378				30,715
	(b)													497	35		532
	(c)	1,089	1,556	845	513	671	637	750	600	284	465	450	378	497	35		31,247
36. South Arica	(a)	87	74	43	180			114									8,447
	(b)																
	(c)	87	74	43	180			114									8,447
37. U.S.S.R.	(a)	5,357	5,980	5,259	6,707	1,768	4,513	5,379	5,446	7,836	5,015	1,829	314				81,783
	(b)								306		22		14				2,483
	(c)	5,357	5,980	5,259	6,707	1,768	4,513	5,379	5,752	7,836	5,037	1,829	328				84,266
38. United Kingdom	(a)	307	453	608	153	227	188		52	116		33					17,986
	(b)												34				34
	(c)	307	453	608	153	227	188		52	116		33	34				18,020
39. United States	(a)	6,969	7,933	6,259	3,820	2,491	3,320	2,425	1,393	1,581	1,097	602	253				115,251
	(b)		62		425	2,119	114	1,409	693	821	157	1,086	361	432	992		9,286
	(c)	6,969	7,995	6,259	4,245	4,610	3,434	3,834	2,086	2,402	1,254	1,688	614	432	992		124,537

** For explanation, see page 8.

Table 6. — NUMBER OF OCEANOGRAPHIC STATIONS (continued)

NATION	* PERIODS	YEARS DATA WERE OBSERVED														
		PRE-1957	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
42. Yugoslavia	(a)	724	260	161	75	142	162	148	314	248	217	254	151	152	146	154
	(b)															
	(c)	724	260	161	75	142	162	148	314	248	217	254	151	152	146	154
43. Korea (Republic of)	(a)		231	779	1,300	764	741	817	453	1,040	1,239	960	1,884	2,155	2,439	1,659
	(b)															
	(c)		231	779	1,300	764	741	817	453	1,040	1,239	960	1,884	2,155	2,439	1,659
44. Ivory Coast	(a)				137	187	55	104	109	142		372	239	130	155	713
	(b)															
	(c)				137	187	55	104	109	142		372	239	130	155	713
45. Nigeria	(a)								513	484						
	(b)															
	(c)								513	484						
46. Congo (People's Republic)	(a)	56							94	18	145	98	101	215	242	155
	(b)															
	(c)	56							94	18	145	98	101	215	242	155
47. Malaysia	(a)															130
	(b)															
	(c)															130
48. Malagasy Republic	(a)			6	5			161	45	24		42	83	54		131
	(b)															
	(c)			6	5			161	45	24		42	83	54		131
49. Morocco	(a)			9												
	(b)															
	(c)			9												
50. Senegal	(a)			13								20	218	349	339	317
	(b)															
	(c)			13								20	218	349	339	317
51. Thailand	(a)												670	559	94	78
	(b)															
	(c)												670	559	94	78
53. Venezuela	(a)								109		43	126	53	91		72
	(b)															
	(c)								109		43	126	53	91		72
60. Cuba	(a)											12	58	91	43	60
	(b)															
	(c)											12	58	91	43	60

** For explanation, see page 8.

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Table 6. -- NUMBER OF OCEANOGRAPHIC STATIONS (continued)

NATION	SOURCE**	YEARS DATA WERE OBSERVED															TOTALS
		1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	
42. Yugoslavia	(a)		117	204													3,629
	(b)				34	66	78										178
	(c)		117	204	34	66	78										3,807
43. Korea (Republic of)	(a)	1,725	482	2,827	39	1,071	1,137	1,159	1,204	1,103	1,072	1,008					29,288
	(b)												1,231				1,231
	(c)	1,725	482	2,827	39	1,071	1,137	1,159	1,204	1,103	1,072	1,008	1,231				30,519
44. Ivory Coast	(a)	8	50	316	157	78											2,952
	(b)																
	(c)	8	50	316	157	78											2,952
45. Nigeria	(a)																997
	(b)																
	(c)																997
46. Congo (People's Republic)	(a)	29						189	287	133	139						1,901
	(b)																
	(c)	29						189	287	133	139						1,901
47. Malaysia	(a)	20															150
	(b)																
	(c)	20															150
48. Malagasy Republic	(a)	176	142	131	142	34											1,176
	(b)																
	(c)	176	142	131	142	34											1,176
49. Morocco	(a)																9
	(b)																
	(c)																9
50. Senegal	(a)	254	243														1,753
	(b)																
	(c)	254	243														1,753
51. Thailand	(a)	248	290	134													2,073
	(b)																
	(c)	248	290	134													2,073
53. Venezuela	(a)		107	144													745
	(b)																
	(c)		107	144													745
60. Cuba	(a)	83	148	157					40								692
	(b)																
	(c)	83	148	157					40								692

** For explanation, see page 8.

Table 6. -- NUMBER OF OCEANOGRAPHIC STATIONS (continued)

NATION	PERIODS	YEARS DATA WERE OBSERVED														
		PRE-1957	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
63. Romania	(a)											22	42	37	24	
	(b)															
	(c)											22	42	37	24	
64. Arab Republic of Egypt	(a)											115				34
	(b)															
	(c)											115				34
71. Tunisia	(a)															
	(b)															
	(c)															
73. China (People's Republic)	(a)															
	(b)															
	(c)															
75. Mauritania	(a)															75
	(b)															
	(c)															75
Totals	(a)	3,002	19,882	23,561	23,765	*19,451	22,393	21,542	32,683	40,068	44,897	37,019	37,117	41,863	40,969	38,128
	(b)	91	56		8	13	13	475	21		593	397	674	547	815	779
	(c)	3,093	19,938	23,561	23,773	19,464	22,406	22,017	32,704	40,068	45,490	37,416	37,791	42,410	41,784	38,907
	(a)															
	(b)															
	(c)															
	(a)															
	(b)															
	(c)															
	(a)															
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	(a)															
	(b)															
	(c)															
	(a)															
	(b)															
	(c)															

* Adjusted by inventory.
** For explanation, see page 8.

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Table 6. -- NUMBER OF OCEANOGRAPHIC STATIONS (continued)

NATION	**	YEARS DATA WERE OBSERVED															TOTALS
		1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	
63. Romania	(a)	35	18	20	15	20	20	18	20	18	19	17	10				355
	(b)																
	(c)	35	18	20	15	20	20	18	20	18	19	17	10				355
64. Arab Republic of Egypt	(a)	123															272
	(b)																
	(c)	123															272
71. Tunisia	(a)		157														157
	(b)																
	(c)		157														157
73. China (People's Republic)	(a)								8	311							319
	(b)																
	(c)								8	311							319
75. Mauritania	(a)	214	122														411
	(b)																
	(c)	214	122														411
Totals	(a)	40,059	*12,854	39,974	31,324	27,723	26,736	*27,156	26,647	27,810	23,248	7,208	1,741				*768,820
	(b)	527	610	590	3,151	2,596	2,877	1,976	1,378	1,614	622	1,624	4,553	3,209	1,027		30,836
	(c)	40,586	43,464	40,564	34,475	30,319	29,613	29,132	28,025	29,424	23,870	8,832	6,294	3,209	1,027		799,656
	(a)																
	(b)																
	(c)																
	(a)																
	(b)																
	(c)																
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	(b)																
	(c)																

* Adjusted by inventory.

** For explanation, see page 8.

Bathythermograph Data Base

Table 7 summarizes the number of bathythermograph observations received since 1957 from the nation under which the data are catalogued. The number of cruises on which the data were observed is also listed. A total of 318,570 bathythermograph observations were taken during 3,071 cruises.

Table 7. -- Number of bathythermograph observations received by WDC-A, Oceanography, from various nations.

Nation	No. of cruises	Type of data format				Total
		Mechanical BT		Expendable BT		
		Analog	Tabular	Analog	Tabular	
1. Argentina	71	4,050	3,688	--	--	7,738
2. Australia	303	--	9,460	1	8,631	18,092
4. Brazil	7	43	85	--	485	613
6. Canada	96	21,248	469	--	216	21,933
7. Chile	7	846	--	--	--	846
8. Colombia	2	316	--	--	--	316
9. Denmark	2	70	--	--	--	70
11. Finland	2	124	168	--	--	292
13. France	13	352	--	--	983	1,335
14. Germany (F.R.)	174	59	13,097	--	5,119	18,275
16. Ghana	1	12	--	--	--	12
18. Iceland	50	124	7,075	--	--	7,199
19. India	2	--	351	--	522	873
20. Indonesia	11	162	67	--	--	229
23. Italy	19	879	170	72	197	1,318
24. Japan	1,915	--	153,254	--	14,925	168,179
25. Mexico	7	--	--	--	269	269
26. Netherlands	23	675	--	--	--	675
28. Norway	2	82	158	--	--	240
29. Pakistan	2	--	65	--	--	65
32. Poland	2	--	153	--	--	153
33. Portugal	23	448	2,725	--	194	3,367
34. Spain	3	194	--	--	45	239
35. Sweden	2	10	57	--	--	67
37. U.S.S.R.	72	428	11,965	--	--	12,393
38. United Kingdom	9	270	270	--	348	888
39. United States	187	36,114	3,489	646	6,452	46,701
43. Korea (Rep. of)	10	--	551	--	--	551
44. Ivory Coast	6	618	--	--	--	618
45. Nigeria	6	1,011	20	--	--	1,031
46. Congo (People's Rep.)	21	2,389	83	--	--	2,472
48. Malagasy Republic	10	476	--	--	--	476
50. Senegal	8	730	--	--	--	730
70. Sierra Leone	2	194	--	--	--	194
71. Tunisia	1	--	121	--	--	121
Total	3,071	71,924	207,541	719	38,386	318,570

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Biological Data Base

Table 8 shows, by nation, the number of biological observations received by this center since its inception. A total of 119,511 observations, including plankton observations, primary productivity measurements, pigment concentration measurements, carbon-14 measurements, and fishery observations, were taken during 1,440 cruises.

Table 8. -- Number of biological observations received by WDC-A, Oceanography from various nations.

Nation	No. of cruises	Type of observation				
		Plankton	Primary productivity	Pigments	C-14	Fishery
1. Argentina	13	452	47	233	129	--
2. Australia	62	1,527	1,599	1,738	--	2,137
4. Brazil	16	754	--	175	--	36
6. Canada	42	1,095	522	906	47	85
8. Colombia	7	181	--	496	--	--
10. Ecuador	3	895	191	116	--	--
12. Taiwan	2	98	--	98	--	--
13. France	25	720	288	449	43	92
14. Germany (F.R.)	7	122	7	759	649	652
15. Germany (D.R.)	9	199	103	1,717	819	--
19. India	12	424	--	--	--	--
20. Indonesia	55	1,674	5	549	--	7
22. Israel	1	58	--	--	--	--
24. Japan	795	28,917	180	11,079	30	4,852
25. Mexico	4	111	13	231	--	--
27. New Zealand	1	46	--	69	71	--
29. Pakistan	1	14	--	--	--	--
30. Peru	1	28	3	27	10	--
33. Portugal	5	351	--	128	--	57
34. Spain	6	66	87	102	--	27
35. Sweden	1	--	18	--	--	--
36. South Africa	19	985	155	11	--	--
37. U.S.S.R.	8	3,701	589	92	--	272
38. United Kingdom	2	399	--	--	--	--
39. United States	238	8,199	4,883	8,630	680	4,445
42. Yugoslavia	1	167	--	--	--	--
43. Korea (Rep. of)	56	13,188	--	--	--	--
44. Ivory Coast	3	27	7	--	--	1
45. Nigeria	6	5	4	--	--	2,018
46. Congo (People's Republic)	4	24	93	70	--	1
48. Malagasy Rep.	9	84	54	54	--	--
50. Senegal	11	34	--	477	--	258
60. Cuba	1	--	37	--	--	--
63. Romania	10	261	--	--	--	--
64. Arab Republic of Egypt	2	--	--	--	--	188
71. Greece	1	3	4	--	--	--
75. Mauritania	1	--	--	--	--	1
Total	1,440	64,809	8,889	28,206	2,478	15,129

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Surface and Subsurface Current Data Base

Table 9 summarizes, by nation, the number of surface and subsurface current measurements received by this Center since its inception. The total of 595,063 current measurements includes 99,211 subsurface and 495,852 surface measurements taken during 3,369 cruises.

Table 9. -- Number of surface and subsurface current measurements received by WDC-A, Oceanography, from various nations.

Nation	No. of cruises	Subsurface	Surface
2. Australia	50	1,663	--
4. Brazil	1	83	--
6. Canada	19	1,558	836
9. Denmark	62	--	20,184
10. Ecuador	1	46	9
11. Finland	6	5,472	5,708
13. France	20	6,450	632
14. Germany (F.R.)	93	10,025	289,261
15. Germany (D.R.)	4	769	47
20. Indonesia	12	147	40
23. Italy	2	782	--
24. Japan	2,803	4,852	147,805
26. Netherlands	21	10,242	--
28. Norway	5	2,665	86
32. Poland	2	291	--
33. Portugal	3	58	--
35. Sweden	116	22,751	24,237
37. U.S.S.R.	48	20,660	1,507
38. United Kingdom	4	19	258
39. United States	58	4,493	4,940
42. Yugoslavia	12	520	81
44. Ivory Coast	3	44	140
46. Congo (People's Republic)	3	218	--
48. Malagasy Republic	1	24	24
52. Turkey	1	5,095	40
63. Romania	19	284	17
Total	3,369	99,211	495,852

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INTERNATIONAL INVENTORIES AND CATALOGUES

Report of Observations/Samples Collected by Oceanographic Programs (ROSCOP)

The Report of Observations/Samples Collected by Oceanographic Programs (ROSCOP) system is an international marine data inventory system which provides World Data Centers, Oceanography, and other inventory centers with a means for determining the availability of internationally exchangeable data in advance of the actual receipt and cataloguing of the data by the data center. This system is also useful in providing a referral service to data not routinely exchanged through the WDC system.

A total of 874 ROSCOP II forms were received by this Center during 1984. Table 10 tabulates the cruises reported by ROSCOP II forms. As of 31 December, ROSCOP forms describing 14,858 cruises had been received. These cruises are tabulated by nation for ROSCOP I in table 11 and ROSCOP II in table 12. ROSCOP forms have now been received from 34 nations. All ROSCOP forms received by either WDC-A or WDC-B Oceanography, are routinely copied to the counterpart World Data Center.

The ROSCOP system is proving useful to the WDC's in providing supplemental information in the servicing of routine data requests. In addition, the system represents a useful tool for supplying additional information during cataloguing of the data and subsequent processing by regional and national centers. Also, in a number of instances, individuals have utilized information from the ROSCOP system provided by WDC-A to request data from the originator that were not yet available from the WDC's.

International Catalogue of Ocean Data Stations

WDC-A, Oceanography, is one of four regional data organizations assisting the Intergovernmental Oceanographic Commission (IOC) in compiling the International Catalogue of Ocean Data Stations, which has replaced the IOC booklet "Fixed Oceanographic Stations of the World" published by UNESCO in 1963. The revised Catalogue has been published by IOC and includes a descriptive listing or index of ocean data stations.

The four regional organizations are: The Kuroshio Data Center, Japan; World Data Center B, Oceanography, U.S.S.R.; the International Council for the Exploration of the Sea, Denmark; and WDC-A, Oceanography, United States. Each organization maintains an up-to-date index with details of all ocean data stations in its geographical area of responsibility and periodically forwards this information to IOC for publication. As of 31 December 1984, WDC-A, Oceanography, had received and forwarded to IOC information for 820 ocean data stations. Forms and chartlets have been received from Canada, Guatemala, Ivory Coast, Netherlands, Norway, United Kingdom, and the United States.

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Table 10. — Number of cruises for which ROSCOP II forms were received by WDC-A, Oceanography, during 1984

Nation	Ship	Cruises	Cruises for which various data were reported					
			Meteorology	Hydrography	Pollution	Geology and geophysics	Dynamics	Biology
1. Argentina	GENERAL SAN MARTIN	9	9	9		9	9	8
	PUERTO DESEADO	2	2	2		2	1	1
2. Australia	COOK	2	2	2		2	1	1
	KIMBLA	5	5	5		5	4	
3. Belgium	KORTRIJK, BELGICA	1	1	1	1	1	1	1
	KORTRIJK, SPA	1	1	1	1	1	1	1
4. Brazil	ALMIRANTE CAMARA	3	3	3	2	3	2	
	ALMIRANTE SALDANHA	2	2	2		2	2	2
9. Denmark	GUNNAR THORSON	5		5	3		5	5
	ADOLF JENSEN	2		2			1	1
13. France	ICHTHYS	4						4
	ICHTHYS & JOAMY	1		1				1
	THALASSA	8	3	7	2	2	1	7
	JEAN CHARCOT	14		4		12	1	1
	CORIOLIS	9	4	5		4	4	6
	ANDRE NIZERY	2	2	2			2	
	PLUTEUS II	7		5	2	4		5
	NADIR	1				1		
	ROSELYS II	6		2	2	1		6
	CRYOS	8	2	8	1	1	2	8
	THALIA	2		1	1	2		1
	MA SOPHIE	1				1		
	BOUEE	2	2	2			2	
	MARION DUFRESNE	4	3	3		1	3	1
	CAPRICORNE	5	5	5			4	2
	LA PELAGIA	14		9	6			14

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Table 10. -- Number of cruises for which ROSCOP II forms were received by WDC-A, Oceanography, during 1984 (continued)

Nation	Ship	Cruises	Cruises for which various data were reported: Meteorology	Hydrography	Pollution	Geology and geophysics	Dynamics	Biology
13. France (cont.)	VAUBAN	17		17			16	3
	CATHERINE LAURENCE	8				8		
	GWALARN	1				1		
	LE NOROIT	4		2	1	3	1	2
	POLARSTERN (F.R.G.)	1				1		
	POSEIDON (F.R.G.)	1		1				
	SONNE (F.R.G.)	1				1		
	LE SUROIT	9	1	2		4		2
	THOMAS WASHINGTON	1				1		
	PROF. GEORGE PETIT	3		1		1	1	2
14. Germany (F.R.)	ANTON DOHRN	14	3	9	2	1	1	13
	FRIEDRICH HEINCKE	14		9				10
	GAUSS II	25	2	15	8	12	8	1
	HANS BURKNER	1		1				
	METEOR	6	2	4	2	5	1	4
	PLANET	14	4	7		7	2	
	POLARSTERN	6	5	6	1	3	1	2
	POLARSIRKEL	1		1				1
	POSEIDON	9	2	5	2	3	2	4
	SOLEA	19		11	4	4		19
	(BW-Boote) TF02, 03, 04	1		1				
	VALDIVIA	3	2	2		2	2	1
	WALTHER HERWIG	11	6	10	1	3		10
	HEINZ ROGGENKAMP	1		1		1		
	ALKOR	1		1				1
15. Germany (D.R.)	PROF. A. PENCK	7	7	7	1			5
	A. VON HUMBOLDT	4	4	4	2			4

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Table 10. -- Number of cruises for which ROSCOP II forms were received by WDC-A, Oceanography during 1984 (continued)

Nation	Ship	Cruises	Cruises for which various data were reported					
			Meteorology	Hydrography	Pollution	Geology and geophysics	Dynamics	Biology
24. Japan	SHOYO	14		11	6	7	10	
	TAKUYO	3		3	1	1	3	
	MEIYO	7		7		2	5	
	KAIYO	3		2		1	2	
	RYOFU MARU	6	6	6	6		6	6
	KOFU MARU	8	8	8	8	1	8	7
	SEIFU MARU	6	6	6	6		6	6
	SHUMPU MARU	8	8	8	6		7	7
	CHOFU MARU	6	6	6	6		6	6
	CHARTERED SHIP	9		1		9	1	
	SHUNYO MARU	3	3	3			3	3
	SHOYO MARU	1	1	1			1	1
	WAKATAKA MARU	2	2	2			2	2
	SOYO MARU	6		6	1		5	3
	KAIUN MARU	3	3	3				3
	TOO MARU	8	8	8				8
	SEIHO MARU	2	2	2				2
	SHIRASE	1		1				1
	HAKUHO MARU	3	1	2		2	1	3
	HAKUREI MARU	2				2		
	SENSHU MARU	21	21	21				10
	SYOYO	1		1			1	
	TANSEI MARU	1		1		1	1	1
28. Norway	MICHAEL SARS	13		11		1		13
	ELDJARN	14		12				14
	G. O. SARS	14		14				14
	JOHAN RUUD	6		6				6
	M/S LANCE	1		1				1

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Table 10. -- Number of cruises for which ROSCOP II forms were received by WDC-A, Oceanography during 1984 (continued)

Nation	Ship	Cruises	Cruises for which various data were received: Meteorology	Hydrography	Pollution	Geology and geophysics	Dynamics	Biology
36. South Africa	MEIRING NAUDE	17	6	7	5	9	7	8
	AGULHAS	4	4	4		2	3	4
	ECKLONIA	2	2	2	2	2	2	2
	AFRICANA	2	1	1		1	1	
37. U.S.S.R.	POISK	2	1	2				
	ERNST KRENKEL	5	5	5	5		4	
	MUSSON	4	4	4	4		2	
	GEORGII USHAKOV	5	5	5	5		4	
	PROFESSOR ZUBOV	1	1	1			1	
	AKADEMIK KOROLEV	1	1	1	1	1	1	
	PASSAT	3	3	3	3		3	
	YAKOV GAKKEL	1	1	1				
	PERSEI	1		1				
	AK. A. VINOGRADOV	2	1	2	2	1		2
	VOLKANOLOG	1		1		1		
	PRIBOY	1	1	1			1	
	VIKTOR BUGAEV	2	2	2	2		2	
	VACHESLAV FROLOV	1	1	1			1	
	MIKHAIL SOMOV	1	1	1				
	RUDOLF SAMOYLOVICH	3	3	3	1		3	
	A. I. VOEIKOV	1	1	1	1		1	
	OKEAN	1	1	1	1		1	
	PROFESSOR VODYANITSKII	1		1			1	1
38. United Kingdom	FREDERICK RUSSELL	17		14	1	6	8	12
	DISCOVERY	11	7	4		9	4	3
	SHACKLETON	7		1		7		

Table 10. — Number of cruises for which ROSCOP II forms were received by WDC-A, Oceanography during 1984 (continued)

Nation	Ship	Cruises	Cruises for which various data were reported					
			Meteorology	Hydrography	Pollution	Geology and geophysics	Dynamics	Biology
38. United Kingdom (cont.)	WHITEHORN	1				1		
	JOHN MURRAY	1				1		
	CHALLENGER	5		3		2	3	3
	ST. CLAIR	1						1
	GEESTBAY	1						1
	ASTREA	1						1
	DART ATLANTIC	1						1
	GRONLAND	1						1
	CONNACHT	1						1
	INNISFALLEN	1						1
	CUMULUS	2						2
	ROSELLE	1						1
	DANA GLORIA	1						1
	DANA HAFNIA	1						1
	VITA NOVA	1						1
	CORNOUAILLES	1						1
	COMMODORE ENTERPRISE	1						1
	ALAFOSS	1						1
	STARELLA	1						1
	BAKKAFOSS	1						1
	GORSETHORN	4				4		
	M. V. BRANDING	1				1		
	BRITISH ENTERPRISE IV	1				1		
	CIROLANA	11		9	2	4		11
	CLIONE	15		7		3	3	13
	G. A. REAY	4		2				3
	PRINCE MADOG	1			1			
	DISCOVERY/ SHACKLETON	1				1		

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Table 10. — Number of cruises for which ROSCOP II forms were received by WDC-A, Oceanography during 1984 (continued)

Nation	Ship	Cruises	Cruises for which various data were reported					
			Meteorology	Hydrography	Pollution	Geology and geophysics	Dynamics	Biology
38. United Kingdom (cont.)	SCOTIA	13		10	2		3	12
	EXPLORER	12		6	5	3	1	11
	CLUPEA	5		2	2	2		5
	GOLDSEEKER	4		2	3	1		4
	WAVECREST	1						1
39. United States	ONAR	7		2		1	2	4
	CAPE HATTERAS	21	5	16	3	13	6	14
	ALPHA HELIX	12	3	11		3	5	6
	DELAWARE II	2	2	2			2	2
	ALBATROSS IV	5	4	5	3	3	3	5
	RESEARCHER	6	2	6	1	2	3	4
	COLUMBUS ISELIN	1		1			1	
	CAPE FLORIDA	9	1	6	2		3	7
	CALANUS	5		3	1	4		2
	WECOMA	13		10	1	2	5	6
	PEIRCE	1	1	1	1	1	1	1
	GYRE	5		3	3	5		3
	LYNCH	1				1		
	NEECHO	3				3		
	ENDEAVOR	10	1	7	2	6	5	4
	ELLEN B. SCRIPPS	16	5	9		3	7	9
	LAIDLY	6		6	1	1		6
	THOMAS WASHINGTON	4		3		4		
	VIRGINIA KEY	2		1			2	
	CAPE HENLOPEN	9	3	9	5	5	7	9
	MELVILLE	4	1	2	1	2	1	
	SWAN	2	1	2			1	
	NEW HORIZON	3	1	2			1	2
	OCEANUS	1		1	1	1		1
	DAVID STARR JORDAN	1	1	1			1	1

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Table 10. — Number of cruises for which ROSCOP II forms were received by WDC-A, Oceanography during 1984 (continued)

Nation	Ship	Cruises	Cruises for which various data were reported					
			Meteorology	Hydrography	Pollution	Geology and geophysics	Dynamics	Biology
39. United States (cont.)	EKVATOR	1	1	1			1	1
	TOWNSEND CROMWELL	2	1	2			1	2
	OREGON II	4		4		1	2	4
	JOHN N. COBB	3		1			2	3
	KITTIWAKE II	1						1
	CURLEW	1						1
	MURRE II	5		3				4
	OCEAN LEADER	1		1		1		1
	MILLER FREEMAN	2	1	2				2
	PAT SAN MARIE	1						1
	OCEAN HARVESTER	1	1	1				1
	SUNCOASTER	2	2	2		1	1	1
	Aircraft	4		4		4		4
	CURRENT METER	1					1	1
	WILKES	7		7		7	1	7
	Ship not identified	9	2	9		9	4	7
	SILAS BENT	3	1	3		3		3
	ASTERIAS	1				1		
	THOMAS G. THOMPSON	2	1	2		1	1	2
	LULU/DSRV ALVIN	2				2		2
	JOHNSON/JOHNSON SEALINK	1				1		1
	EASTWARD	1				1		1
	KANE	1		1		1		1
	Total	874	252	619	158	298	279	527

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Table 11. -- Number of cruises for which ROSCOP I forms have been received by WDC-A, Oceanography, as of 31 December 1984

Nation	No. of cruises	Cruises for which various data were reported					
		Descriptive oceanography	Current measurements	Meteorology	Geology and geophysics	Biology	Other observations
1. Argentina	1	1		1			
2. Belgium	15	14	3	14	12	10	4
6. Canada	63	54	16	26	23	25	23
8. Colombia	9	9		9			
9. Denmark	41	40	2	20		18	10
10. Ecuador	6	3	3	3	2	3	1
11. Finland	27	27		18	9	19	11
13. France	98	67	18	46	47	50	34
13. France with Malagasy Republic	2	2		2		2	
14. Germany (F.R.)	497	340	49	36	125	329	200
15. Germany (D.R.)	16	16	5	16		14	11
18. Iceland	39	38	14	36	2	22	1
19. India	32	32				29	
21. Ireland	12	12		4		8	8
23. Italy	3	3	2	2			1
24. Japan	214	193	91	146	23	104	14
26. Netherlands	78	75	18	34			22
28. Norway	108	105	8	48	17	99	24
30. Peru	3	3	2	3		3	1
32. Poland	82	82	18	19	8	57	13
34. Spain	35	33	23	14		8	5
35. Sweden	38	35	3	26	7	19	21
37. U.S.S.R.	85	85	16	65	8	4	8
38. United Kingdom	614	354	143	151	135	391	254
39. United States	20	14	2	15	19	7	17
43. Korea, Rep. of	8	8		8			

(continued)

Table 11. -- Number of cruises for which ROSCOP I forms have been received by WDC-A, Oceanography, as of 31 December 1984 (continued)

Nation	No. of cruises	Cruises for which various data were reported					
		Descriptive oceanography	Current measurements	Meteorology	Geology and geophysics	Biology	Other observations
46. Congo (People's Republic)	16	16	2	11		13	15
50. Senegal	1				1		
75. Mauritania	2	2		1		2	
Total	2,163	1,661	438	834	438	1,236	698

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Table 12. -- Number of cruises for which ROSCOP II forms have been received by WDC-A, Oceanography, as of 31 December 1984

Nation	No. of cruises	Cruises for which various data were reported					
		Meteor-ology	Hydrog-raphy	Pollu-tion	Geology and Geophysics	Dynamics	Biology
1. Argentina	84	57	68		70	40	52
2. Australia	31	19	27	4	22	14	11
3. Belgium	13	12	13	11	10	10	13
4. Brazil	86	71	80	13	75	28	55
6. Canada	130	13	99	19	52	76	41
7. Chile	1	1	1				
9. Denmark	183	9	174	53	6	80	118
11. Finland	77	19	75	27	15	6	46
13. France	1,968	390	1,038	373	777	342	1,031
14. Germany (F.R.)	719	134	516	117	172	103	430
15. Germany (D.R.)	102	91	96	10	3	14	61
16. Ghana	1	1	1		1		1
18. Iceland	122	110	94	6	1	1	3
19. India	8	7	8	3	4	1	7
21. Ireland	36	34	35	11	3	5	35
24. Japan	1,223	739	1,125	258	176	605	705
26. Netherlands	264	92	181	26	72	53	86
28. Norway	312	7	306	43	3	18	291
32. Poland	100	100	97	37	6	72	28
33. Portugal	1					1	
34. Spain	15	2	6	2	1	3	8
35. Sweden	85	85	83	27	5	9	48
36. South Africa	352	245	273	73	80	222	130
37. U.S.S.R.	283	247	269	155	40	171	21
38. United Kingdom	1,694	174	795	226	555	376	1,026
39. United States	4,804	1,071	2,994	712	1,630	1,085	2,961
43. Korea (Rep. of)	1	1	1	1			
46. Congo (People's Republic)	1				1		
Total	12,696	3,731	8,455	2,207	3,780	3,335	7,208

DATA AND INFORMATION SUPPLIED

In response to requests, 133 shipments (table 13) were made during 1984 consisting of 52,682 oceanographic stations, 2,989 data sheets additional to oceanographic stations, 2,337 ROSCOP forms, 152 publications, 83 WDC-A catalogues, and 47 WDC-A reports. In addition to routine distribution to addressees on the Center's mailing list, shipments were made to 28 nations and 4 international organizations.

Since most of the data received by WDC-A are subsequently acquired by the U.S. National Oceanographic Data Center (NODC), placed into its automated data processing system, and geographically sorted by machine, requests for data for specified geographic area, or requests with other specialized requirements, may be handled for WDC-A by NODC.

World Data Center A, Oceanography, data and publications are provided free of charge to qualified requesters in the international oceanographic community as items of exchange. In general, small requests for activities or individuals affiliated with national or regional contributors to WDC-A, Oceanography, will be considered as an exchange service and will be fulfilled without charge. Similar requests from noncontributors may be handled in the same way. For certain types of requests, limitations in funding, personnel, and facilities may preclude direct or free provision of data or information by World Data Center A, Oceanography. In the case of large or specialized requests by noncontributors, WDC-A, Oceanography, will recover the costs for processing and shipping. Unusually voluminous requests, or requests for special data services or products not readily available at WDC-A, Oceanography, may be serviced by a regional, national, or disciplinary center at the request of WDC-A, Oceanography. The requester will be charged an amount not to exceed the cost of processing and shipping.

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Table 13. -- Summary of data, publications, and information supplied to nations and international organizations during 1984

Nation	No. of shipments	No. of serial stations	No. of data sheets*	No. of ROSCOP forms	No. of publications	No. of WDC-A	
						Catalogues	Reports
1. Argentina	3	38	3				
2. Australia	2	25,465				1	
6. Canada	5	1,250		61		25	3
7. Chile	1	40	8				
13. France	3			1,080			
14. Germany (F.R.)	7		518				1
15. Germany (D.R.)	1				2		
16. Ghana	1				5		9
19. India	5	10	72		2		3
22. Israel	1					3	
23. Italy	1	202	4				
24. Japan	1				1		
26. Netherlands	1				2		
28. Norway	1		11				
29. Pakistan	16				27	2	2
31. Philippines	1	27	30				
36. South Africa	1			4			
37. U.S.S.R.	1				3		
38. United Kingdom	3		348				
39. United States	36		602	631	24	27	17
51. Thailand	1		218				
65. Lebanon	1					2	3
67. Monaco	1		176				1
68. Greece	1						2
72. Trinidad & Tobago	1				1		
73. People's Republic of China	3	6,272	35	79	3		
74. Czechoslovakia	2		2		3		3
Liberia	1				9		3
Total	102	33,304	2,027	1,855	82	60	47

See footnotes at end of table.

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Table 13. -- Summary of data, publications, and information supplied to nations and international organizations during 1984 (continued)

International organization	No. of shipments	No. of serial stations	No. of data sheets*	No. of ROSCOP forms	No. of publications	No. of WDC-A †	
						Catalogues	Reports
ICES	5	6,349	68		1		
IOC	1		11	248	3		
UNEP	2		30		7	17	
WDC-B, Oceanography	23	13,029	853	234	59	6	
Total	31	19,378	962	482	70	23	
Total shipments to nations and international organizations	133	52,682	2,989	2,337	152	83	47

* In addition to serial stations.
† In addition to routine distribution to addressees on mailing list.

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PUBLICATIONS

Change Notice Nos. 30 and 31 to the Catalogue of Data was distributed during May.

Change Notice Nos. 32 and 33 and Oceanographic Data Exchange, 1983 were distributed during September.

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2. Change Notice Nos. 1, 2, 3, 4, 5, 6, 7 and 8, 9, 10, 11, 12, 13 and 14, 15, 16, 17 and 18, 19, 20 and 21, 22, 23 and 24, 25 and 26, 27, 28 and 29, 30 and 31, 32 and 33, to the Catalogue of Data; WDC-A, Oceanography; April 1968, March 1969, May 1969, December 1969, April 1970, December 1970, December 1971, April 1972, November 1972, March 1973, April 1974, April 1975, December 1975, May 1976, January 1977, November 1977, May 1978, February 1979, May 1980, March 1981, December 1981, October 1982, and December 1983.

3. Fourth Consolidated Guide to International Data Exchange through the World Data Centres; ICSU Panel on World Data Centres, Washington; June 1979.

4. Manual on International Oceanographic Data Exchange; Intergovernmental Oceanographic Commission, Technical Series 9, fourth edition (revised), UNESCO, Paris; 1976.

5. International Marine Science; Vol. I, No. 1, through Vol. VII, No. 4, UNESCO, Paris; 1963-70.

6. Oceanographic Data Exchange, 1971; WDC-A, Oceanography; April 1972.

7. Oceanographic Data Exchange, 1972; WDC-A, Oceanography; June 1973.

8. Oceanographic Data Exchange, 1973; WDC-A, Oceanography; June 1974.

9. Oceanographic Data Exchange, 1974; WDC-A, Oceanography; August 1975.

10. Oceanographic Data Exchange, 1975; WDC-A, Oceanography; June 1976.

11. Oceanographic Data Exchange, 1976; WDC-A, Oceanography; June 1977.

12. Oceanographic Data Exchange, 1977; WDC-A, Oceanography; July 1978.

13. Oceanographic Data Exchange, 1978; WDC-A, Oceanography; July 1979.

14. Oceanographic Data Exchange, 1979; WDC-A, Oceanography; September 1980.

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